

The association between sialic acid and type 2 diabetes in older patients

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OBJECTIVES

The study has proposed to determine the levels of serum sialic acid in a group of older patients with type 2 diabetes mellitus (NIDDM) compared to a group of control subjects.

MATERIALS AND METHODS

Studies were carried out in 79 patients (men and women) aged 66 ± 10 years, divided in two study groups: a control group (n = 41) and a type 2 diabetes group (n = 38). Serum determinations of biochemical parameters were performed by laboratory tests using standardized methods. Total serum sialic acid was determined by Ehrlich's method and the results were expressed in mg/dL serum.

RESULTS

- significant differences between the two study groups for the determined clinical and biochemical parameters (Fig.1).
 - high levels in serum sialic acid at patients with NIDDM compared to control group (97.01 vs 76.13 mg/dL serum ($p < 0.001$)) (Fig.2).
- positive correlations between levels of serum sialic acid with glucose ($p < 0.05$) and glycosylated hemoglobin (HbA1c) ($p < 0.01$) levels, in the diabetic patients (Fig.3).

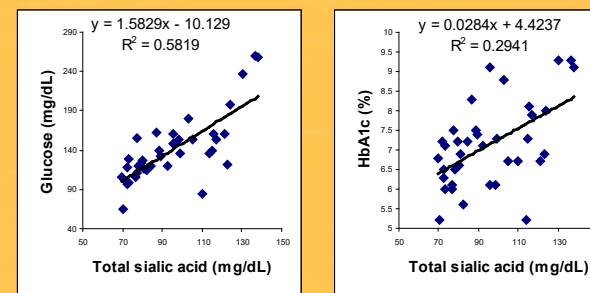
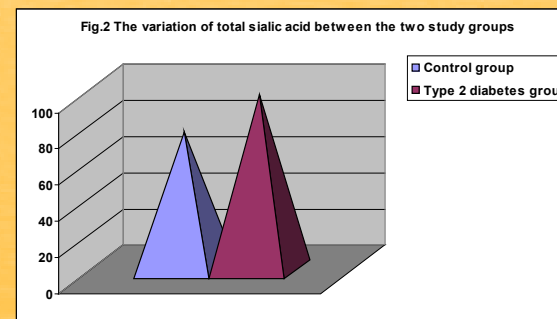
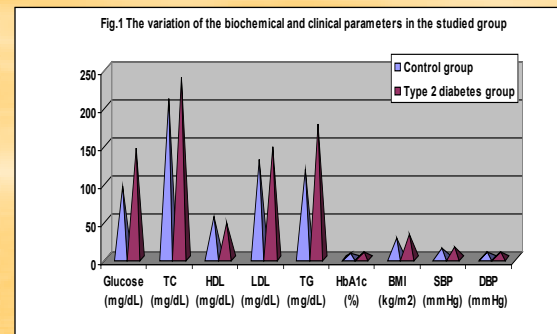


Fig.3 Correlation between total sialic acid with glucose and glycosylated hemoglobin (HbA1c), in the diabetes group

CONCLUSIONS

Sialic acid, present as terminal component of oligosaccharide chains of many glycoproteins and glycolipids, have been found to be significantly associated with the development of DM, which could be due to the fact that the diabetic patients even without overt complications may have developed subclinical vascular or other lesions which might influence the glycosylated protein concentration as well as its composition. Our results suggest that determination and monitorization of serum sialic acid levels may help in predicting the subclinical inflammatory process and could be useful in the early discovering of chronic degenerative complications to patients with diabetes mellitus.